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# University of the State of New York Bulletin

Entered as second-class matter August 2, 1913, at the Post Office at Albany, N. Y., under the act of August 24, 1912

Published fortnightly

No. 703

ALBANY, N. Y.

FEBRUARY 1, 1920

*Arthur Kendall Holman*

## HIGH SCHOOL DEPARTMENTS OF VOCATIONAL AGRICULTURE

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ALBANY

THE UNIVERSITY OF THE STATE OF NEW YORK

1920

# THE UNIVERSITY OF THE STATE OF NEW YORK

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## FOREWORD

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"I have visited, or walked or ridden through every county of this great State. I have seen the vineyards of Chautauqua, the orchards of the Genesee, the hop-fields of the Chenango, the farms of the Mohawk, the pastures of the St Lawrence, the forests of the Adirondacks, the flower-gardens of the Hudson, the geranium window-boxes of Manhattan, the asparagus beds of Oyster Bay and the sea-weed shores of Suffolk. And, seeing, I have marvelled at the varied productivity of a soil which, like a magician, brings forth now a turnip and now a peach, now an onion and now a rose, and in the seasons round everything from a homely Irish potato to an exquisite orchid. The fields are full of mystery and miracle.

"But as I have ridden on the railroads or walked in the highways, with narrow strips of waste ground on either side of the track or road filled with weeds or wild flowers or stunted bushes, I have been made concious that the Almighty is dependent upon man for the working of these miracles of the fields. He can make, unaided of man, potatoes, but only small potatoes and of acrid taste. He had to make a primitive man and even teach him to use a hoe before He, the Omnipotent One, could grow a patch of potatoes. Then he had to teach boys and men chemistry (the uses of Paris Green and arsenate of lead) and plant physiology and soil physics before he could make such prize potatoes as are to be seen at this Fair."

The above quotation from an address which I made at the State Fair at Syracuse will intimate my appreciation of the vital importance of the training which will make such cooperation possible.

The movement is already well under way in the vocational departments of agriculture in some seventy of our rural high schools. Their number could well be doubled to better serve the interests and demands of those contemplating agricultural pursuits. I would invite boards of education administering rural high schools to give special consideration to the establishment of departments of vocational agriculture.

JOHN H. FINLEY



## INTRODUCTION

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Agriculture is our oldest and largest industry, however measured. In the early development of this Nation the economic policy of the government was concerned chiefly with interests of industries in the centers of population. During this period agriculture developed rapidly because of natural conditions which favored its progress. The fostering of manufacturing and commerce brought economic and social problems which have long been recognized. In the wake of these conditions have come problems strictly rural in character which the American people have begun but recently to appreciate. Chief among these is the creation and the maintenance of an environment on the farm and in the farm home such that a fair proportion of intelligent and able American citizens will continue to earn their livelihood from the land.

In few lines of work has there been greater progress in the past generation than in the science of agriculture. Several generations of farm experience and years of scientific research have resulted in a fund of information concerning crop and animal production. For nearly half a century the colleges of agriculture have been training young men and women in the science and practice of agriculture and for service in rural communities. Not until the past decade, however, has the public school assumed its full responsibility in training for rural life the youth who were unable to attend the agricultural college. Since the enactment in 1909 of the law relating to vocational education the State has encouraged local communities to undertake the teaching of vocational agriculture in the high school. The federal vocational education act passed by Congress in 1917 provides for the promotion and extension of agricultural education through the schools in the several states. Local boards of education desiring to introduce agricultural instruction as a part of the high school work have been able to do so by virtue of liberal state and federal aid. At the present time seventy high school departments are in operation. The instruction is designed primarily for farm boys and young men of the community who desire to follow farming as a vocation.

Experience indicates that the most effective agricultural instruction is conducted in schools located in regions where a large number of persons are engaged in farming as a vocation and which are

sufficiently large to warrant a good average enrolment in the agricultural classes. Before the establishment of a department of agriculture a preliminary survey should be made to insure that such conditions obtain. It has been inevitable that some mistakes should have been made in the early development of a type of instruction so complex as that of vocational agriculture. In a few high schools courses have been established and later discontinued for legitimate reasons. However, as the forward-looking program of agricultural education is extended the experiences gained in these schools will be fully utilized so that ultimately there may be established in this State strong departments sufficient in number to meet educational needs in agriculture.

A high school department of vocational agriculture is but a part of an organized nation-wide movement to promote better farming, better business and better living. Instruction in such a department means more than an attempt to turn back to the farm the tide that flows cityward or to induce children to stay in school, although these are natural outcomes of such instruction. The true purpose of agricultural education is to fit for agricultural pursuits those who may cast their lots with the farm. It is based on the recognition of the dignity of labor and the necessity for practical experience in the attainment of a well-rounded education. While emphasizing training in the skill and knowledge necessary to control plant and animal production such education includes the usual instruction in English, history, economics, science and mathematics which every boy should receive in preparation for social efficiency and leadership in rural affairs.

This bulletin has been prepared by A. K. Getman, specialist in agricultural education. Valuable assistance has been rendered by A. P. Williams and W. J. Weaver, assistants in agricultural education. Acknowledgment is also made of helpful suggestions given by Prof. G. A. Works and Prof. W. F. Lusk of the rural education department and L. M. Roehl of the department of rural engineering, State College of Agriculture.

The list of equipment was prepared by a committee representing the Education Department and the State College of Agriculture, together with the following teachers of agriculture: H. L. Case, L. R. Hart, Roy Olney, O. B. Trowbridge and Ray Huey.

L. A. WILSON

*Director, Division of Agricultural and Industrial Education*

*April 26, 1920*



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## HIGH SCHOOL DEPARTMENTS OF VOCATIONAL AGRICULTURE

### PURPOSE OF THE BULLETIN

This bulletin treats of the organization and administration of a high school department of vocational agriculture. It is one of a series of publications issued by the Division of Agricultural and Industrial Education of The University of the State of New York designed to give information to school officials concerning rules and regulations governing the organization and administration of state-aided vocational schools.

The general bulletins issued by the Division of Agricultural and Industrial Education are as follows:

- 1 State-aided Evening Vocational Schools
- 2 High School Departments of Vocational Agriculture
- 3 State-aided High School Departments of Homemaking
- 4 Practical Arts Courses for Girls
- 5 The General Industrial School
- 6 Unit Trade and Technical School
- 7 Part-time or Continuation Schools and Classes

### DIVISION OF AGRICULTURAL AND INDUSTRIAL EDUCATION

The Division of Agricultural and Industrial Education of The University of the State of New York is charged with the general supervision of vocational education as provided for under the State Education Law, the administration of vocational education under the provisions of the federal vocational education act, and with the duty of gathering and making known all obtainable helpful information upon the subject.

Whenever the establishment of any form of vocational instruction is contemplated in any locality in this State, application for preliminary advice and guidance should be freely made to this division.

## A HIGH SCHOOL DEPARTMENT OF VOCATIONAL AGRICULTURE

A high school department of vocational agriculture is to be considered an integral part of the organization of a public high school. Pupils in such a department recite their nonvocational subjects, such as English, history, economics, science and mathematics, in the same classes with pupils in other departments in the school.

The principal of the school is responsible for the general administration of the department of agriculture and for making administrative and financial reports to the Division of Agricultural and Industrial Education.

## ESTABLISHING A DEPARTMENT OF VOCATIONAL AGRICULTURE

When local school officials contemplate the establishment of a high school department of vocational agriculture, the following information should be furnished to the Division of Agricultural and Industrial Education: (1) number of boys in the academic department, (2) number of boys residing on farms, (3) registration of boys in the grammar grades of the rural schools tributary to the high school, (4) demand for instruction in vocational agriculture, (5) total assessed valuation of the school district, (6) extent to which farmers will cooperate in promoting the work of the department of agriculture.

When this information is received, if conditions seem to warrant, a detailed survey will be made by representatives of this division who will visit the school and confer with the school officers and other persons interested in organizing and promoting instruction in vocational agriculture.

In a city, a board of education has authority to establish a high school department of vocational agriculture but in a union free school district or a common school district, if after a survey has been made it seems expedient to establish a department of agriculture, the question must be submitted to an annual or special district meeting. (The resolutions should be voted upon either by ballot or by taking and recording the ayes or noes. The resolution to be submitted at such meeting may be in the following form:)

*Resolved*, That the trustees or board of trustees of, or board of education of union free school district no....., town.....d.... county of....., establish and maintain as a part of the public school

system of such district a school of agriculture, mechanic arts and homemaking for the school year beginning August 1, 19.., and provide the necessary equipment and instruction therefor.

The resolution includes a provision for a department of homemaking because under the law a department of vocational agriculture and a department of homemaking in the same school are designated as a "school of agriculture, mechanic arts and homemaking."

After a district has voted to establish a school it rests with the board of education to determine when the work in homemaking shall be started, but it is assumed that both agriculture and homemaking are contemplated when the district votes to establish the school.

Soon after the resolution is adopted the board of education should provide for raising in the annual tax budget such a sum as may be necessary to carry out the provisions of the resolution. Immediate steps should also be taken to investigate the record of some man who is competent to teach agriculture. The qualifications of teachers on page 10 furnish an idea of what is required.

## REQUIREMENTS FOR STATE AND FEDERAL AID

The minimum requirements to be met by local school authorities desiring state and federal aid on account of the establishment and maintenance of a high school department of vocational agriculture are as follows:

1 All departments and classes must be under public supervision and control.

2 In the work of a department of agriculture provision must be made for at least six months of directed or supervised practice in agriculture.

3 Pupils should be trained for the vocation of farming with special emphasis on those types of farming which are dominant in the community.

4 The two rooms used for agricultural instruction must be adequate to insure the accomplishment of reasonable standards of work and to carry out the purposes for which the course was established. (See page 18.)

5 The agricultural library should contain such books, bulletins and periodicals as are necessary for efficient study and instruction in the subjects to be taught. (See page 27.)

6 Provision should be made for such professional improvement of the teacher of agriculture as may be designated by the Commissioner of Education.

7 Provision must be made in each department of agriculture for the minimum equipment listed on page 21.

8 A department of agriculture must have an enrolment of at least twelve pupils throughout the year. The Commissioner of Education, however, may in his discretion approve of a department of agriculture with an enrolment of less than twelve pupils when the local school authorities submit evidence showing that such condition is temporary in character.

9 Provision must be made for such expenses of travel of the teacher of agriculture as are necessary properly to supervise the project activities of the pupils registered in the agricultural course. At least fifty dollars must be set aside by the board of education to meet this requirement.

10 The time of the teacher of agriculture must be devoted exclusively to the teaching of vocational pupils except in special cases and then only after consultation with and the approval of the Commissioner of Education.

11 A department of agriculture is required to maintain an organization and courses of study which meet the approval of the Commissioner of Education.

12 The local school authorities are required to make adequate provision for the filing of all official records of the department of agriculture. (See page 30.)

#### PURPOSE OF AID

The primary purpose of state and federal aid is to stimulate local communities in the establishment and to assist them in the maintenance of vocational education. Separate rooms and equipment must be provided and a large amount of individual instruction given if this type of education is to be effective. The special plant and equipment and the individual instruction are necessarily expensive. On account of this financial outlay local communities must be reimbursed if vocational instruction is to be developed.

The state and federal governments bear a large proportion of the cost of maintaining vocational courses because pupils trained in the skilled occupations may not ultimately reside in the community in which they receive their training. Furthermore, it is the function of the state and federal governments to promote and extend a type of education so vitally affecting state and national prosperity.

Vocational instruction as a part of the public school system should be considered in every way as a cooperative enterprise conducted by a local board of education and the State Education Department. The State Education Department administers both state and federal funds. The standards which are set up have been formulated in the interests of efficient instruction in the individual school. A complete unity of effort on the part of local boards of education and the Department of Education is necessary if the highest grade of instruction and the fullest measure of results are to be attained.

#### AMOUNT OF AID

Under the provisions of article 22 of the State Education Law and the federal vocational education act, the benefits of which were accepted by the State Legislature, the Commissioner of Education is charged with the work of organization, promotion and extension of vocational education and has the authority to reimburse from both state and federal funds local communities which establish and maintain approved courses in vocational subjects. If in the organization and maintenance of a department of agriculture the minimum requirements are met, boards of education are entitled to apportionments from state and federal funds as indicated in the following table:

Table showing the proportion of the agricultural teacher's salary paid by the local community, the State and from federal funds

YEARLY SALARY	NET COST TO LOCAL COMMUNITY	REIMBURSEMENT FROM	
		STATE FUNDS	FEDERAL FUNDS
\$1100.....	\$300	\$800	.....
1200.....	333 <sup>1</sup> <sub>3</sub>	866 <sup>2</sup> <sub>3</sub>	.....
1300.....	366 <sup>2</sup> <sub>3</sub>	933 <sup>3</sup> <sub>3</sub>	.....
1400.....	200	1000	\$200
1500.....	233 <sup>1</sup> <sub>3</sub>	1000	266 <sup>2</sup> <sub>3</sub>
1600.....	266 <sup>2</sup> <sub>3</sub>	1000	333 <sup>3</sup> <sub>3</sub>
1700.....	300	1000	400
1800.....	333 <sup>1</sup> <sub>3</sub>	1000	466 <sup>2</sup> <sub>3</sub>
1900.....	366 <sup>2</sup> <sub>3</sub>	1000	533 <sup>3</sup> <sub>3</sub>
2000.....	400	1000	600
2100.....	433 <sup>1</sup> <sub>3</sub>	1000	666 <sup>2</sup> <sub>3</sub>
2200.....	466 <sup>2</sup> <sub>3</sub>	1000	733 <sup>3</sup> <sub>3</sub>
2300.....	500	1000	800
2400.....	533 <sup>1</sup> <sub>3</sub>	1000	866 <sup>2</sup> <sub>3</sub>

## QUALIFICATIONS OF TEACHERS

No teacher should be employed for vocational work who has not a special authorizing certificate. In order to receive such a certificate teachers must show evidence of graduation from a four-year high school course or the equivalent, and also from a four-year agricultural college in which an approved course has been pursued. Such a course must provide that at least 10 per cent of the college credit hours be obtained from educational and professional subjects. In general, these subjects include educational psychology, principles of teaching, special methods and observation and practice teaching.

It is not sufficient simply to employ certified teachers; successful teaching by them, evidence of which will be secured to some extent by official inspection, will be needful to obtain or retain the necessary approval by the Commissioner of Education of the teaching force of a high school department of agriculture, as a satisfactory part of its organization.

The Division of Agricultural and Industrial Education has no desire to select the teacher of agriculture but since the State pays a large proportion of the salary of the first teacher and one-half the salary of each additional teacher of vocational subjects, it is incumbent upon the division having charge of this work to insist that only the best available teachers be engaged. Boards of education should, therefore, consult with this division before contracting with their vocational teachers.

It is especially desirable that the same teacher, if efficient, be retained for several years as the experience gained each year, the knowledge of community conditions and the touch with the home projects make the work increasingly effective. If teachers change frequently it is hardly possible to make the most of this work. The following points concerning the teachers of agriculture should be kept in mind:

- 1 A teacher of agriculture should be thoroughly conversant with farm life, either from his home life or extended experience working on a farm.

- 2 A teacher of agriculture in a secondary school should have good general knowledge of the entire field of agricultural subjects, including animal husbandry, dairy husbandry, poultry husbandry, soils, farm crops, vegetable gardening, fruit growing, plant diseases, entomology, farm management and farm machinery. In addition, he should have specialized in some phase of technical agriculture.



3 A teacher of agriculture should have knowledge of the science and art of teaching. A thorough knowledge of agriculture may be of little use unless the teacher also has knowledge of how to direct the activities of pupils.

4 A teacher of agriculture should understand the intent of vocational agriculture, should be familiar with the farm home and should understand the problem of connecting the school work and the home activities of the pupils.

5 A teacher of agriculture should possess skill in the use of wood-working tools and should have knowledge of mechanical drawing.

#### ADVISORY BOARDS

Under the law a board of education maintaining a high school department of vocational agriculture is required to appoint an advisory board of at least five members representing the local trades, industries and occupations. It is suggested that this board have stated meetings and be prepared to (1) advise in the organization of courses of study, (2) assist in the development of a proper understanding on the part of the school patrons concerning the work of the department in its relation to the community, (3) contribute materials, carry on demonstrations or tests, give practical talks at the school or on their own farms, (4) assist in the organization of the home project activities of all grade and high school pupils, and (5) promote in any other manner the interests of the department.

### NOTES ON ORGANIZATION AND ADMINISTRATION

#### CURRICULUMS

In the preparation of curriculums for a high school department of agriculture two types should be recognized: (1) a four-year curriculum and (2) a curriculum of less than four years.

*Four-year curriculum.* A four-year curriculum is organized to meet the needs of a group of pupils regularly enrolled in the academic department and leads to an academic diploma in vocational subjects. This diploma will be issued to pupils in recognized high schools who earn at least 72 counts, who meet the regular requirements for an academic diploma as follows: English 16 counts, science 10 counts, mathematics 10 counts, history 10 counts, and obtain at least 25 counts for the successful completion of approved courses in vocational subjects. This diploma will admit the pupil to

the New York State College of Agriculture at Cornell University and to the College of Agriculture at Syracuse University.

It is expected that there will be kept on file in each department of agriculture a statement of the curriculum leading to the academic diploma in vocational subjects. After approval this curriculum should not be changed without consulting with the Director of the Division of Agricultural and Industrial Education. The following suggestions will assist school officers in the preparation of a curriculum:

SUBJECT	PLACE IN CURRICULUM	PERIODS A WEEK
English		
First year.....	First year.....	4
Second year.....	Second year.....	4
Third year.....	Third year.....	4
Fourth year.....	Fourth year.....	4
Mathematics		
Algebra.....	First or second year..	5
Geometry.....	Second or third year..	5
Industrial arithmetic.....	Elective.....	2½
Science		
Biology.....	First year.....	5
Physics or chemistry.....	Third year.....	5
Physics or chemistry (not chosen in third year)	Elective.....	5
History and economics		
Community civics <sup>1</sup> .....	Second year.....	2½
Economics or.....	Third year.....	2½
History (course B).....	Third year.....	5
U. S. history with civics.....	Fourth year.....	5
Agriculture		
First year.....	First year.....	10
Second year.....	Second year.....	10
Third year.....	Third year.....	10
Fourth year.....	Fourth year.....	10

<sup>1</sup> The course in community civics published and recommended by the National Bureau of Education (Bul. 650, 1915, No. 23) will be, for the present, approved by the Department.

The organization of a four-year curriculum calls for a double period each day for agriculture and is based on the assumption that the home project is an integral part of the work for each of the four years; credit for the work each year is given only after the completion of the projects. Regents credit of 7½ counts for each year's work in agriculture is given. The final statement of home projects, on blanks provided for this purpose, must be approved by the Division of Agricultural and Industrial Education before Regents credit can be granted.



It is recommended that first and second year agriculture precede third and fourth year agriculture in the case of pupils pursuing the four-year curriculum. In order that the teacher may teach the four years of agriculture it will be necessary to alternate at least two years of work. If the entering class is large each year it is well to teach first and second year agriculture and alternate third and fourth year.

*Curriculum of less than four years.* In several sections of the State the agriculture is so specialized that a curriculum of less than four years will adequately meet the vocational needs of the pupils. In such districts school officers administering the department of agriculture should prepare a two-year or a three-year curriculum designed to emphasize training in a specialized field, such as grape growing, truck farming, etc.

In some high schools the enrolment of boys is so small that a four-year curriculum is not warranted. In such schools a two-year or three-year curriculum may well be organized. Pupils desiring to receive intensive instruction in agriculture during any one year should be permitted to pursue two years of agricultural work.

It is often desirable, under special conditions, for two small high schools conveniently located to join in the employment of a teacher of agriculture. Such a teacher would be able to give two years of work in each school by giving half of his time each day to each school; in schools of this type a curriculum of two or possibly three years should be organized.

#### SUGGESTED ARRANGEMENT OF SCHEDULE OF CLASSES

To make the teaching effective ample time should be provided for field study. This study requires extended trips to the homes of the pupils and the farms of the community to study practices, crops, soils, animals etc. It is suggested that the schedule of classes be so arranged that the withdrawal of pupils from school will not interfere with the class work of the other subjects. Also if the pupil is to conduct his project properly it frequently becomes necessary for him at critical stages in its progress to give more time than is permitted if he spends the entire time of each day attending school. This again requires an adjustment of the schedule of classes to provide for half day periods which may be devoted to agricultural instruction.

This does not mean that the entire time of every half day is given over to agricultural instruction, but rather that the arrange-

ment of the schedule of classes will permit of such a program when the efficiency of the instruction requires it. The accompanying diagram illustrates how it may be made effective. The following are the salient features of the plan:

1 It will be necessary to alternate at least two years of work if the four years of agriculture are to be given by one teacher.

2 At least six months of supervised practice in agriculture is required for the completion of each year's work. In fulfilling this requirement it is suggested that provision be made for pupils to carry on a portion of this practice in half day periods during the regular session of the school.

3 The time spent in supervised practice will be credited toward school attendance on the proper certification of the school authorities.

4 On those days when field or practice work is not required the pupils will devote a double period to agriculture. The remaining periods in the half day may be devoted to the preparation of other school work.

Suggested arrangement of the schedule of classes

PERIODS	1 First year 2 agriculture 3 4	Third year academic subjects	MORNING
	5 First year 6 academic subjects 7	Third year agriculture	
			AFTERNOON

ALTERNATE YEAR

PERIODS	1 Second year 2 agriculture 3 4	Fourth year academic subjects	MORNING
	5 Second year 6 academic subjects 7	Fourth year agriculture	
			AFTERNOON

## THE COURSES OF STUDY AND TEACHING PLANS

The class and laboratory instruction in a department of agriculture is based upon the practical experience gained on the home farm and at the project. In New York State there is a wide variation in the type of farming. On account of these facts it is impracticable to prepare courses of study for the various agricultural subjects that are adapted to all conditions. It is highly desirable, however, to organize the content of the various years' work in agriculture so as to include the important phases of agricultural production. The subjects indicated below are suggested for the four-year curriculum. School officers desiring to include additional subjects or to rearrange those mentioned below should secure the approval of the Director of the Division of Agricultural and Industrial Education.

*First year agriculture*

Farm shop work  
Poultry husbandry  
Home gardening (if not given in second year)

*Third year agriculture*

Animal husbandry  
Fruit growing  
Dairying

*Second year agriculture*

Farm crops  
Soils and fertilizers  
Home gardening

*Fourth year agriculture*

Farm management and economics  
Farm engineering and machinery

The agriculture taught in each department of agriculture should relate definitely to the type of farming dominant in that region and should be organized so as to make the fullest possible use of the pupil's experience gained on the farm and at the project as well as the experience of the successful farmers in the community. In order to facilitate this type of teaching each teacher of agriculture is expected to prepare at the beginning of each year an outline of the subject matter he proposes to teach during that year. This outline is termed a "Course of Study and Yearly Teaching Plan" and should be on file, on or before September 15th of each year, in the Division of Agricultural and Industrial Education. After approval one copy will be returned to the school for filing. It will not be necessary for each teacher of agriculture to prepare an entirely new plan each year. Important changes in an approved plan should be forwarded in duplicate to this division for approval on or before September 15th of those years when such changes are necessary. Such changes will constitute a supplement to the original plan.

In the preparation of the course of study and yearly teaching plan consideration should be had for the following:

- 1 The subject matter in a year's work should be organized in accordance with the seasonal sequence of operations on the farm into "fall," "winter" and "spring," or monthly groups of topics and subtopics.

- 2 The entire plan should be made up of a series of "units of work" or lessons and the approximate double periods which will be required to carry out each unit or lesson assigned to it.

- 3 Careful study should be made of the agriculture of the region so that the fullest use may be made of the educational opportunities of the local farming practices. New teachers of agriculture should be employed August 1st in order that they may have an opportunity to study the agriculture of the community and become acquainted with the successful farmers. Local agricultural surveys will assist teachers in the adjustment of the course of study and teaching plan to meet local needs. Individual surveys conducted by the pupils of the class in preparation for their class and project work should also be utilized.

- 4 As the work progresses memoranda of the desired changes should be made to the end that the actual experience of teaching the various lessons may result in the preparation of a better course of study and teaching plan for the following year.

#### THE HOME PROJECT

The participation by all pupils in supervised agricultural practice is an essential part of vocational agricultural instruction. The school places emphasis on the fundamental principles, the best business methods and the most successful practices of farming. To make the fullest use of the educational opportunities of the school, the home and community, and to insure actual contact with practical work on the part of pupils, provision must be made for supervised farm work. This training in the practice of farming is accomplished by a home project which may be defined as a farming enterprise which is studied and planned at school under direction and carried into operation on the home farm or other farm where satisfactory arrangements are made under the supervision of the teacher of agriculture. It is not a series of problems relating to agriculture but is rather a definite piece of work in the conducting of which ownership, correct business methods, managerial ability, economic profit and study are emphasized. An approved home project is necessary to the completion of each year's work in agriculture.

In making preparation for and in conducting home project work with vocational pupils, teachers should give attention to the following general requirements:

1 The home project must be conducted over a period of at least six months. This does not mean that six months is a sufficient amount of time in which to complete all projects. Animal and poultry projects, for example, should be continued for at least one year, and a strawberry or an orchard project should be continued for at least two years.

2 The major project must be chosen from the field of agricultural production studied that year.

3 The project should be chosen at the earliest possible date in the course of instruction. In fact, with the exception of those in the entering class, pupils should choose their projects before the opening of school in the fall. The "Preliminary Statement of Home Projects" must be on file in duplicate in this division on or before November 1st.

In cases where it seems advisable to change the project after the preliminary statement has been approved, a record of such change should be forwarded in duplicate to this division. In every case this record should be accompanied by definite reasons for the change.

Teachers should exercise great care in assisting pupils in the choice of their projects so that changes other than those warranted by study and investigation will not be necessary. Special attention should be given to the visitation of parents and the bringing about of a complete understanding on the part of all concerned in the problems and ultimate success of the project work.

4 Project study should start immediately after the enrolment of pupils in the agricultural class and should furnish the basis for the agricultural instruction in any given subject. The organization of the subject matter in the yearly teaching plan should coordinate very closely with the problems and questions which the pupils are likely to encounter in conducting their individual projects. This is readily accomplished inasmuch as the subject matter and the activities of the project are each organized and conducted in accordance with the seasonal sequence of farming operations.

5 The complete project plan, records, accounts and summary must be kept on file in the school. Pupils should be required to show evidence why the various phases of the work as planned have not been carried into effect if such a condition obtains.

6 Project supervision should consist in continued instruction of individual pupils at the scene of their work and should be so conducted that definite problems may be left with the pupil at the close of each visit, together with suggestions or directions to be followed up by subsequent visits.

7 The "Final Statement of Home Projects" should be on file in this division on or before May 1st of the year following the year in which the work was begun.

#### LABORATORY AND RECITATION ROOM AND THE FARM SHOP

The rooms and equipment provided for a department of agriculture should be as modern and convenient as for any other department in the school. Rooms are not to be used for this work unless they are well heated, lighted, ventilated and sanitary. Provision should be made for two rooms: laboratory and recitation room and the farm shop.

The laboratory and recitation room and its equipment furnishes a means for demonstrating various phases of agriculture and affords an opportunity for securing individual experience. One large room properly equipped to serve as a combination laboratory and recitation room has been found most satisfactory (see figure 1).

This room should have running water and gas when possible. To save cost of plumbing it is better to have the water taps in the laboratory at one sink in a single drain. If gas is inaccessible, alcohol or other burners should be provided. The agricultural room should be near the ground with easy access to the outside of the building so that classes may readily pass in and out without disturbing others in the building.

Laboratory tables approximately 6 by 2½ feet, provided with three drawers, supply all needs for laboratory and recitation purposes. An arrangement of these tables as shown in figure 1, with chairs for three pupils at each table, furnishes good seating accommodations for class work. In many cases it is both convenient and economical to have these tables made locally.

Adequate provision should be made to accommodate bulletins and periodicals. Bulletin holders or boxes or a bulletin case such as the one shown in figure 1 are convenient. A rack on which the current issues of the agricultural periodicals may be kept is also desirable. The bulletin case and the periodical rack may well be built in the farm shop.





Laboratory and recitation room.





Ample case room should be provided for apparatus, laboratory supplies and demonstration material. The upper doors should be of glass so that material may be readily located. The lower doors should be of wood, since glass so low down is frequently broken.

The laboratory and recitation rooms should also contain plenty of drawer space. If possible, all cases should be mouse-proof so that grains and other edible material may be safely stored. The blackboard should be mounted in a frame so squared up and finished that a T-square may be used for the construction of blackboard figures.

The purpose of the farm shop and its equipment is to furnish a means for instructing pupils how to do the repair and construction work which ordinarily needs to be done on the farm. Consideration should be had for (*a*) the fundamental tool operations, (*b*) care and sharpening of tools, (*c*) construction practice definitely related to the project work of the pupils. During those years when shop work is not definitely scheduled as a part of the course of study the shop should be open and in running order and pupils should receive instruction in special phases of shop work which develops as a result of their project study and class work.

Under average conditions a room for shop work can be provided. It should be at least 16 by 24 feet in area, well lighted and preferably with a southern exposure. Rooms not already suitable for the purpose may often be made so at small expense. If absolutely necessary, a basement room may be fitted up. In this case additional windows will frequently be needed.

The shop should be provided with portable benches. A bench 16 feet by 48 inches provided with three vises on each side, designed by the department of rural engineering, State College of Agriculture, Ithaca, has been found very satisfactory. This bench accommodates six pupils and under average conditions at least two such benches are necessary. The benches should be placed so as fully to utilize the floor space for handling lumber and work with the saw horses. It is suggested that provision be made in each shop for a bench with both a wood and a metal working vise such as might well be used on the farm. A lumber rack, usually built by the agricultural class, is an essential part of the farm shop equipment. Experience indicates that the best arrangement for the tools is to provide one or two wall cabinets approximately 6 by 4 feet and 10 to 12 inches deep. The cupboard doors should be hinged at the side and fitted with a hasp and lock at the middle. A grindstone or a foot power, high speed carborundum grinder should be provided.

The ceiling of the room should be properly prepared to deaden the sound of work being done in the shop. The under side of the floor joists overhead should be sheathed with "deadenng felt," and this covered by a tight wooden ceiling or by lathing and plastering. Metallic ceiling should not be used because of its sound-conducting properties.

The floor should be of wood. Cement floors are cold and hard on the pupils' feet. An edged tool may be spoiled if dropped on a cement floor. The shop room should contain a blackboard arranged for the use of a T-square as described on page 19.

#### EQUIPMENT

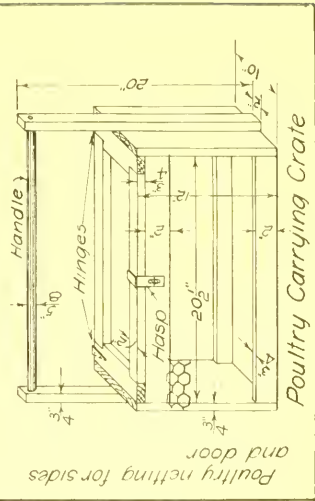
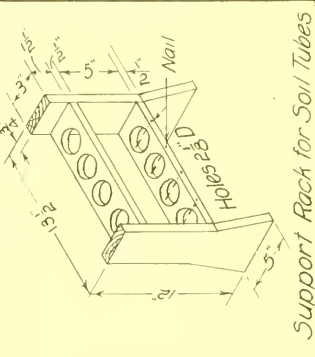
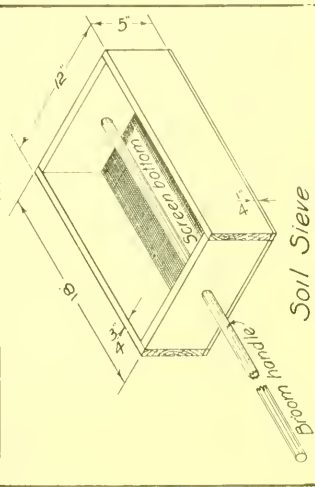
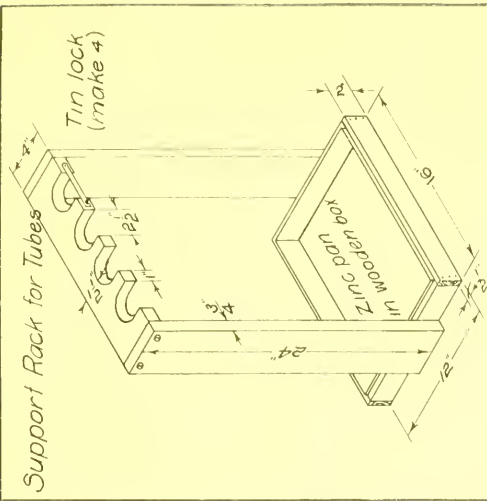
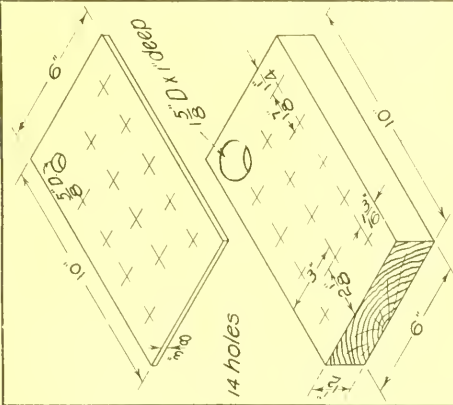
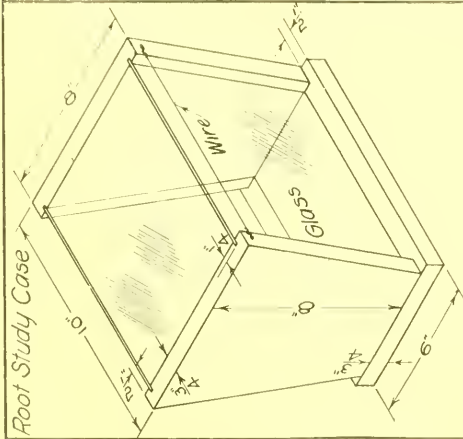
In the selection and purchase of equipment for a department of agriculture consideration should be had for the following:

1 If the department of agriculture is to qualify for state and federal aid provision must be made for the minimum list of equipment. It is not expected that the total amount of equipment in any given department of agriculture will be limited to this list, but rather that the minimum requirements shall be considered as the least amount with which effective teaching can be done. Teachers of agriculture should give special attention to additional equipment to meet the instructional needs of special phases of agriculture dominant in the community.

2 At the opening of a department of agriculture and at the beginning of each year thereafter a list of needed materials and apparatus should be prepared by the teacher of agriculture. In the preparation of this list attention should be given to (*a*) the kind and amount of materials and apparatus, (*b*) where these may be purchased, and (*c*) the approximate cost. On receipt of this list the board of education should appropriate the necessary funds.

3 Much valuable material for class and laboratory instruction may be collected by the teacher of agriculture from the community. This collection should be made in accordance with a carefully prepared plan of what is needed rather than to attempt to rely on gathering this material whenever it may be seen in the field. All materials should be preserved or mounted and labelled and neatly arranged in the laboratory cases.

4 A considerable amount of laboratory apparatus may be constructed in the farm shop. Care, however, should be exercised in doing this work in the shop because if no educational aim is to be served and there is no great financial saving to be realized the





apparatus might better be purchased on the open market. The items of equipment shown in plates 1 and 2 should be constructed for each department of agriculture.<sup>1</sup>

5 Inasmuch as provision is made for the alternation of at least two years of work, the entire cost of equipment may be distributed over two years.

6 An inventory of all apparatus should be kept on file at the school. At the beginning of each year blanks will be furnished by the Division of Agricultural and Industrial Education on which the school will be expected to report equipment added during the previous year.

### Minimum equipment for high school departments of vocational agriculture

#### *First Year Agriculture*

#### WOOD WORKING

Amt.	Item
1	1½" brad awl
1	Set bits ¼", 5/16", ⅜", 7/16", ½", ⅝", ¾", ⅞", 1"
1	Countersink, rose
2	Screwdriver bits, ⅜" tip and 5/16" tip
2	Bit brace, 8" sweep
12	Chisel, socket, firmer, two ¼", one ⅜", four ½", one ⅝", three ⅞", one 1"
4	Dividers, 8", loose leg, wing
1	Set twist drills ⅛-⅜ by 32ds, square shank
1	File, mill cut, 6"
1	File, mill cut, 10"
6	File, slim taper, triangular, 6"
2	File, slim taper, 5"
1	File, auger bit
1	File card (cleaner)
6	Gauge, marking, plain
1	Glass cutter, turret head
1	Grindstone, 2" x 24", ball bearing mounted with foot pedal
1*	Carpenter's hammer, equal number, bell face, adze eye, curved claw; and plain face, straight claw
1	Drawing knife, 8"
1	Level and plumb, wood 26"
1	Level stand and sights
1	Mallet (or more if shop made)
3	Nail set (assorted)
1	Oiler
1	12" half round wood file

<sup>1</sup> These plates have been prepared by L. M. Roehl, department of rural engineering, State College of Agriculture, Ithaca, N. Y.

\* One for each pupil in average size class.

Amt.	Item
------	------

- |    |   |
|----|---|
| 4  | Wood screw (adjustable) two 8", two 12"                               |
| 2  | 4 foot steel bar carpenter's clamps                                   |
| 1  | Oilstone, coarse and fine face carborundum                            |
| 1* | Plane, jack, 14" iron, 2" cutter                                      |
| 3  | Pliers (assorted)   |
| 1  | Punch, center   |
| 1  | Putty knife   |
| 2  | Saw, cross cut 22", 10 point  |
| 3  | Saw, cross cut, 24", 10 point   |
| 1  | Saw, cross cut, 26", 8 point  |
| 2  | Saws, rip, 26", 5 point   |
| 1  | Saw, compass, 16"   |
| 2  | Saw, coping, metal handle   |
| 1  | Saw, hack, 10", with one doz. blades                                  |
| 1  | Saw set   |
| 1  | Saw vise (shop made)  |
| 3  | Screwdrivers, 4", 8", and 10"   |
| 3  | Sliding T-bevels two 6", one 8"                                       |
| 2  | Square, steel, 16" or 18" x 24", polished                             |
| 1  | Square, mitre (blade fixed at angle of 45°)                           |
| 1* | Square, try, 8" or 9" tongue  |
| 1  | Tape in case, 100 feet  |
|    | 1" iron bench screw for home made bench vise (1 for each vise needed) |
| 1  | Blacksmith's vise, 3½" jaw  |
| 1* | Bench stop (shop made)  |
| 1  | 10" monkey wrench   |
| 1* | Two-foot rule, four fold  |
| 1* | Bench hook (shop made)  |

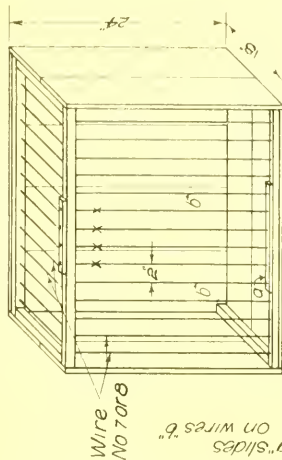
## BLACKSMITH'S TOOLS

- |   |   |
|---|---|
| 6 | Cold chisels (assorted sizes ⅜" to ⅝")  |
| 1 | Set drills ⅛" to ½" by 16ths with square shank to fit bit stock   |
| 1 | Hammer, riveting 10 ounces  |
| 1 | Punch, center   |
| 1 | Set, stock, dies and taps 3/16"-26 threads, ¼"-26, 5/16"-20, 7/16"-16, ½"-16 for threading bolts and nuts |
| 1 | Breast drill or other geared drill  |
|   | (Installation of the following items included under blacksmithing is optional with boards of education)   |
| 1 | Anvil, 80 or 100 pounds steel with hardened face  |
| 1 | Hardie to fit anvil   |
| 1 | Forge, portable with hood and tub   |
| 1 | Hammer, blacksmith's 2 pound  |
| 1 | Hammer, ball pein 24 ounces   |
| 1 | Tongs, 18" length straight lip, ¼" opening  |
| 1 | Tongs, bolt, 3⅝"-½" opening   |
| 1 | Tongs, fluted jaw, for ¼" to 5/6" iron  |

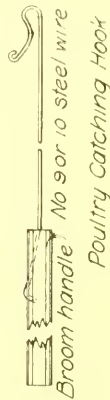
\* One for each pupil in average size class.

# PLATE 2

Poultry Show Crate

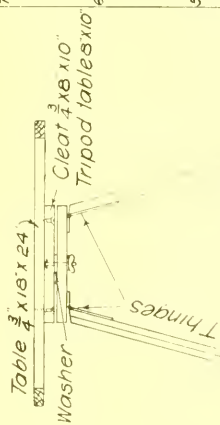


Raise wires x for door  
Use lumber  $\frac{3}{4}$  x  $\frac{3}{4}$  for frame  
Use  $\frac{1}{2}$  lumber for floor, sides & back

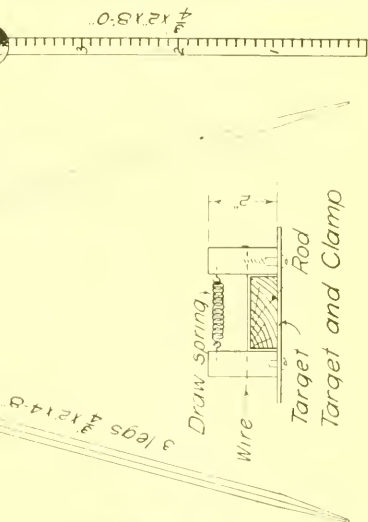


Poultry Catching Hook

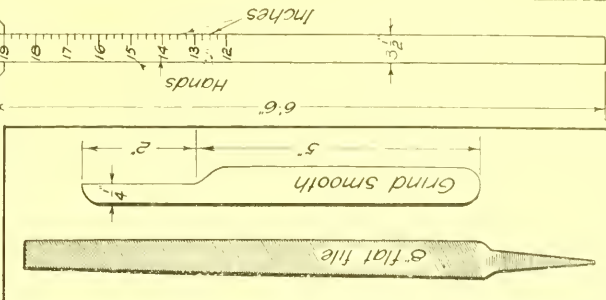
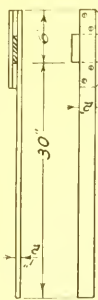
Plane Table and Leveling Rod



5 Target



Measuring Standard



Sticking knife





## PIPE FITTING (optional)

Amt.      Item

- 
- 1 Cutter, 3 wheel, cutting  $\frac{1}{4}$ "-2"
  - 1 Stock and dies, Armstrong type, cutting  $\frac{1}{4}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1", 1 $\frac{1}{4}$ ", 1 $\frac{1}{2}$ ", and 2" for threading pipe
  - 1 Pipe vise, capacity  $\frac{1}{4}$ "-2"
  - 1 Wrench, 18" Stillson pattern, iron handle
  - 1 Wrench, 12" Stillson pattern, iron handle

## TINNING

- 1 Soldering scraper
- 1 Blow torch
- 2 Copper, two pounds
- 1 Snips, 3 $\frac{1}{2}$ " cut
- 1 Bar solder, half and half  
Muriatic acid and zinc  
Sal ammoniac

## HARNESS REPAIR

- 6 Sewing awl, assorted
- 2 Awl haft
- 1 Knife, harness-maker's straight
- 1 Punch, revolving 6 tube
- 1 Sewing horse made in shop
- 1\* Black shoemaker's wax
- 1 Paper needles, no. 7
- 1 Ball harness thread, no. 10 white
- 1 Box 50 assorted split rivets
- 1 Cake black harness soap
- 1 Quart can harness dressing
- 1 Riveting machine
- 4 Boxes assorted tubular harness rivets

## DRAWING

- 1\* Board, 14" x 20"  
Drawing paper, sizes 8" x 10 $\frac{1}{2}$ " and 12" x 18"
- 1\* Wooden T-square 22"
- 1\* 8" 45 degree angle triangle
- 1\* 8" 30 and 60 degree angle triangle
- 1\* Triangular boxwood scale  $\frac{3}{32}$ ",  $\frac{1}{8}$ ",  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1", 1 $\frac{1}{3}$ ", 3" and full scale in 1/16" divisions
- 1\* 25 $\frac{1}{2}$ " compass
- 1\* 4 H. pencil
- 1\* Lead eraser  
Thumb tacks

## POULTRY EQUIPMENT

- 1 Incubator (2, 3)†
- 2 Sticking knives (1, 2)  
Collection poultry feeds in glass

\* One for each pupil in average size class.

† Source (1) shopmade, (2) purchased, (3) gratis.

Amt.      Item

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- Jars for exhibit (2, 3)
- Supply of poultry feeds for laboratory work
- Sample cartons (3)
- 1 Catching hook (1)
- 1 Butcher knife (2)
- Show crates (1)
- Carrying crates (1)
- 1 Egg scales (2)
- 1 Small hand sprayer (2, 3)
- 1 30 pound milk scales (for use also in third year agriculture) (2)
- Insecticides and disinfectants (2, 3)
- Waterglass (2)
- Other temporary equipment made in shop for exhibition or project use
- Oat sprouter (1)
- Feed hoppers (different types) (1)
- Watering devices and stands (1)

### *Second Year Agriculture*

- 1 Soil auger (1, 2)
- 1 Round-pointed shovel (2)
- 1 Sieve for screening soils (1, 2)
- 1 Soil thermometer (2)
- 1 Collection of fertilizer samples and lime (2, 3)
- 2 Sheet celluloid 24" x 36" for capillary tubes (2)
- 3 Mulch cylinder (1, 2)
- 1 Set soil bins (1)
- 1 Root study case (1)
- 3 Germination trays (1)
- 1 Platform spring scales ("Family type") (2)
- 1\* Tripod lens (2)
- 1 Collection threshed grains (3)
- 1 Collection weed seeds in vials (2, 3)
- 1 Collection grass seed and other farm seeds in vials (3)
- 1 Collection grasses and grains (whole plant) (3)
- 1 Set dry measures, including 2 quart, peck, half bushel and bushel

### *Third Year Agriculture*

- 1 Brass or brass-lined sprayer (2)
- 1 Babcock milk tester (2)
- 1 Dozen pipettes (2)
- 1 Burette (2)
- 1 Dozen whole milk bottles (2)
- $\frac{1}{2}$  Dozen cream bottles (2)
- $\frac{1}{2}$  Dozen skim milk bottles (2)
- $\frac{1}{2}$  Dozen acid measures (2)
- 1 Quevenne lactometer (2)
- 2 Dairy thermometer (2)

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\* One for each pupil in average size class.

Amt.      Item

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- 1\* Milk bottle holder (1)
- 4 Test bottle brushes (2)
- 1 Collection of feeds (3)
- 4 Budding knives (2)
- 2 Grafting chisel (1, 2)
- 4 Pruning shears, hand (2)
- 4 Pruning saw (2)
- $\frac{1}{2}$  Pound raffia (2, 3)
- 1 Cylinder for hydrometer (2)
- 1 Measuring standard for horses (1, 2)
- 1 Sediment tester, simple inexpensive type (2)
- 1 Collection of fruit diseases and insect pests (3)
- 1 Long handled lopping shears (2)

#### *Fourth Year Agriculture*

- 2 Trowel for cement work (2)
- Catalogues of farm machinery (3)
- 1 Plane table, 18" x 24" (1)
- 1 Level (included in 1st-year list)
- 1 Measuring tape, 100 ft. (included in 1st year list)

#### *Miscellaneous*

- 1 Gross ounce vials (2)
- 4 Dozen 8-ounce wide mouth bottles with corks (2)
- 4 Dozen easy-seal pint jars, clear glass (2)
- 2 Dozen easy-seal quart jars, clear glass (2)
- 1 Dozen tumblers (2)
- 1 Dozen test tubes assorted (2)
- 1 Dozen flower pots, 6" (2)
- 1 Dozen pie tins (2)
- 3 Dozen paper pie plates (2)
- $\frac{1}{2}$  Dozen 8" x 2" straight glass chimneys (2)
- 3 Funnel (2)
- 1 Dozen 5' linen tapes and 1' rulers (2, 3)
- 1 Measuring cup in ounces (2)
- 2 Graduate in 100 cc (2)
- 1 Graduate in 250 cc (2)
- 1 Oil or gas stove, with oven (2)
- 1 Rubber stamping outfit for charts (2)
- 1 Duplicator (1, 2)
- 1 Pair shears (2)
- 2 Large dish pan (2)
- 3 Wooden, 3 to 5 gallon pail, tub, or container (2, 3)
- Support racks for use in setting up apparatus (1)
- 6 Feet Rubber tubing (2)
- 5 yds. Cheese cloth (2)
- Corks, assorted (2)

---

\* One for each pupil in average size class.

Amt.	Item
------	------

2	Cake, parrafin (2)
	Gummed labels (2)
1	Package filter paper (2)
	Litmus paper (2)
	Sulphuric acid for milk testing (2)
	Commercial spray compounds (3)
	Lime (2)
	Sulphur (2)
	Chemicals in amounts needed for laboratory demonstrations (2)
	Copper sulfate (2)
	Formalin (2)
	Farrington's alkali tablets (2)
	Corrosive sublimate tablets, colored (2)
	Washing compound (2)
	Arsenate of lead and other insecticides (2)
	Tallow, beeswax and rosin for grafting wax (2)
	Potassium permanganate (2)

The school should own a portable stereopticon

#### USE OF LAND

It is neither necessary nor desirable for a school to own a farm; however, a plot ranging from one-half of an acre to not more than two acres owned or leased by the school may make the teaching of agriculture much more effective. This plot will furnish a means of objective teaching and will serve to vitalize much of the agricultural instruction by providing a point of contact between the subject matter studied and the practices at the homes of the pupils and on the neighboring farms. The plot also conserves the time and effort of the teacher of agriculture by providing a means for group instruction. Boards of education and teachers of agriculture are urged to conduct a school plot as a part of the work of the department.

In planning and conducting the school plot school officers should give attention to the following:

- 1 The plot of ground should be representative of the true agricultural conditions of the region and if rented should be leased for a period of years.

- 2 The plot should be conveniently located.

- 3 Provision must be made for the tools and equipment necessary to do the work.

- 4 Use should be made of the labor of the boys just in so far as such labor possesses educational value, unless the boys are hired. It is usually necessary to hire some horse and man labor.

5 The cost of the plot need not be excessive. Usually the value of the product will more than pay the necessary expenses.

6 The following types of work may well be undertaken :

- a* Ear to row test of corn
- b* Pedigreed breeding of corn
- c* Tuber unit test of potatoes
- d* Variety study of regional crops
- e* Insect and disease studies including methods of control
- f* Liming and inoculation test
- g* Representative section of a farm garden
- h* Orchard work: varieties, cultural practices and succession of operations
- i* Laboratory material: small grains, grasses, legumes and new crops

#### THE AGRICULTURAL LIBRARY

To meet the requirements for state and federal aid schools of agriculture are required to provide a library sufficient for effective study and instruction in the subjects to be taught. In building up such a library attention should be given to (*a*) reference books, (*b*) agricultural bulletins and reports and (*c*) periodicals.

In selecting reference books for the agricultural library care should be taken to see that the library as a whole is well balanced. Several of the best books on each of the important groups of subjects should be included. This is better than to select a library that is especially strong in some particular field. In providing for major groups of subjects, however, attention should be given to those phases of agriculture dominant in the community. For example, in a dairying region more attention would be given to the purchase of books on dairy husbandry than in a fruit-growing region. Experience indicates that the practice of purchasing more than one copy of a book on a particular subject that is of special importance locally is a desirable one. For example, in regions where cabbage or potato growing are specialties, from three to five copies of the books dealing with these special crops might well be placed in the library. All reference books should be listed in the school accession book at the time of purchase. At the beginning of each year proper forms will be forwarded by the Division of Agricultural and Industrial Education to schools of agriculture. It is expected that all books purchased during the previous year will be reported to the division on these forms.

Teachers of agriculture should give attention to the collection of bulletin publications from the United States Department of Agriculture and the various state colleges, experiment stations and state departments of agriculture. These bulletins should (1) be chosen with the end in view of selecting those essential to the needs of the pupils rather than attempting to assemble a large number, many of which will never be used, (2) be made a part of the school library rather than the personal property of the teacher, (3) be filed and cataloged in some simple and practical way which will permit of ease in securing information and at the same time be easy to keep in order.

In applying for bulletins, it is well to indicate the title as well as the number of the publication. Inasmuch as it is the custom of colleges and experiment stations to have a reserve list of bulletins set aside for library use, it is also well to state that the bulletins for which you are applying are for the school library. Representatives and senators of the various states usually have a large number of United States Department of Agriculture publications at their disposal and those publications that have been withdrawn from the free list may often be obtained free of charge upon application to them.

Boards of education should make provision for the subscription by the school to several periodicals. These should be carefully selected with a view to meeting the agricultural needs of the community.

#### SUMMER WORK OF THE TEACHER OF AGRICULTURE

It is an essential part of the organization of the school that the teacher of agriculture be employed for service during the summer months. It is necessary for the board of education or trustees to determine the educational services to be rendered by this teacher during the time the school is not open (the summer vacation). This plan is to be submitted to the Division of Agricultural and Industrial Education. The following suggestions will be of assistance to boards of education in planning this work:

1 The school year should begin August 1st rather than in September or July. This will give a new teacher an opportunity to get acquainted with the agriculture of the section and to formulate the course of study and teaching plan.

2 The following are some phases of summer work suggested for the teacher of agriculture: (a) supervision of senior and junior projects, (b) collecting materials for classroom and laboratory use

the following year, (*c*) locating objective points and making arrangements for field trips to be taken the following year, (*d*) studying the agricultural practices of the region by means of surveys and personal conferences, (*e*) investigating the need and making preliminary arrangements for short unit and evening courses, (*f*) cooperating with organized agricultural agencies in conducting work in the community that is of mutual benefit to such agencies and to the department of agriculture, (*g*) attending to the school plot.

The teacher of agriculture should keep a diary of his activities during the two summer months when school is closed. It is desirable to add to this a summary of extension work throughout the year, including rural school visits, local fairs or exhibits held, meetings held, attended, or addressed, articles prepared for newspapers, farm visits, advice or demonstrations given to farmers.

#### GROUPS OF PUPILS TO BE REACHED BY A DEPARTMENT

In the organization of a high school department of vocational agriculture consideration should be had for at least three groups of pupils. These are:

1 Pupils regularly enrolled in the high school who pursue the agricultural curriculum leading to an academic diploma in vocational subjects.

2 Boys and young men who have left school without completing the elementary or high school courses and who may be interested in receiving definite instruction in the vocation of farming. This group may be admitted to the regular agricultural classes and may elect such academic subjects as they may desire, or they may be enrolled in special classes organized during the winter months when the farm work is slack. This instruction should be designed to meet the special needs of the group and should focus on a farm project which each pupil should undertake and conduct for a period of at least six months under the supervision of the teacher of agriculture.

3 Adults living and working on farms desiring instruction in specialized phases of their work. The needs of this group may well be met by the organization of short unit day or evening classes, the frequency of which will be determined in a large measure by the members of the class. The instruction should be organized with a farm enterprise in a special field of production as the basis of discussion. Whereas the teacher of agriculture will have general direction of the work, his efforts will be supplemented by special



lectures or demonstrations given by persons of the community who have done successful work in the field under discussion or by specialists from the College of Agriculture and Experiment Station or by county farm bureau agents.

#### DUPLICATION OF MONEY FOR APPARATUS AND UTENSILS

Money expended for books and apparatus, including tools and utensils to be used in the vocational departments of high schools, will be duplicated from the academic fund in the same way as expenditures for physical and chemical apparatus. No duplication will be made for money expended for unbound periodicals, series or sets of books by different authors, textbooks, furniture, fixtures, benches, machinery, chemicals or supplies consumed in using.

#### TEACHER OF AGRICULTURE AS PRINCIPAL

In case a qualified teacher of agriculture is serving as principal, he may be considered as the first teacher of agriculture under the condition that (*a*) all his teaching is of vocational subjects, (*b*) an assistant principal is provided. This arrangement should not be made without consulting the division, as it is sometimes difficult to maintain a satisfactory organization when the teacher of agriculture acts as principal.

#### NONRESIDENT TUITION

Nonresident pupils of academic grade who come from districts not having academic departments and who are enrolled in the vocational courses may be counted for payment of tuition by the State, under the same conditions as pupils taking the ordinary high school work.

#### TIME OF RECEIVING APPORTIONMENTS

The apportionments for vocational schools are based upon the annual financial report rendered at the close of the school year. The apportionments from state funds are paid with the district and teachers quotas in March and May following the close of the school year. The apportionments from federal funds are paid on or before September 1st of each year.

#### SCHOOL RECORDS

The following records should be kept on file at the school subject to inspection:

- 1 Register of pupils in all agricultural classes
- 2 Teacher's class book
- 3 Copy of all examination questions



- 4 Diary of summer work
- 5 Inventory of library books and equipment
- 6 Complete records of each pupil's project. These records should include (a) project plans, (b) financial and labor records and (c) a project summary. Attention is called to the form on the title page of the final statement of home projects which reads "There is on file in this school a detailed record of each project"
- 7 Permanent record of all vocational pupils

The following is a list of reports to be made to the Division of Agricultural and Industrial Education by each teacher of agriculture with approximate dates of transmissal:

- September 15 — Courses of study and teaching plans  
 November 1 — Preliminary statement of home projects  
 May 1 — Final statement of home projects for the previous year  
 June 1 — Claim for academic credit for subjects studied during the previous year. These claims are to be made after the final statement of home projects has been approved

#### SUGGESTED CONTRACT FOR TEACHER OF AGRICULTURE

Sections 561 to 566 inclusive of the Education Law of 1910

I..... of ..... county of ..... a duly qualified teacher, hereby contract with the board of trustees of district no....., town of ..... county of ..... to teach agriculture in the public schools of said district for the term of fifty-two consecutive weeks except as hereafter provided, commencing August 1, 19.. and ending July 31, 19.. at a monthly compensation of.....dollars and ..... cents payable at the end of each thirty days during the term of such employment. One per cent of the amount of each order or warrant issued in payment of the compensation required to be paid hereunder shall be deducted as provided by article 43 B of the Education Law relative to the state teachers retirement fund.

And the board of trustees of said district hereby contract to employ said teacher for said period at the said rate of compensation, payable at the times herein stated.

Said board of trustees reserve the right to provide for a vacation or vacations of not more than.....weeks in the aggregate, such vacation not to occur during the months of July and August.

Under the rules and regulations of the Board of Regents governing the professional improvement of teachers of agriculture the board of education hereby designates.....as the period of professional improvement for the teacher of agriculture, such period to be considered as a part of the teacher's term of service under this contract.

Date.....19

.....

*Teacher*

.....  
 .....  
 ..... } *Trustees*

This contract shall be executed in duplicate and one copy thereof given to the teacher and one retained by the board.

#### TERMINOLOGY

The following terminology which has come to have general acceptance in the literature dealing with vocational agricultural education is used by the Division of Agricultural and Industrial Education.

##### *Educational*

*Vocational education* shall mean any form of specialized education the controlling purpose of which is to be fit for profitable employment.

*Vocational agricultural education* as used in this bulletin is "that education of less than college grade which is designed to meet the needs of pupils fourteen years of age or over who intend to follow agricultural pursuits, which gives the skill and knowledge necessary to the control of plant and animal production to the end of economic profit and which is so articulated with other education as to promote the most desirable farm community life."<sup>1</sup>

##### *Administrative*

*The program of studies* shall mean all the subjects offered in a given school without reference to any principle of organizing these subjects into curriculums.

*The curriculum* is a group of subjects systematically organized for any pupil or for any clearly differentiated group of pupils. It extends through a definite period of time and leads to a certificate or diploma. It also represents an arrangement of courses within which a pupil is restricted in his choice of work.

*The course of study* shall mean the quantity, kind and organization of subject matter in any given subject of instruction offered within a definite period of time.

*Schedule of classes* shall refer to the daily and weekly arrangement of classes for recitation and laboratory work.

A copy of the State Education Law relating to the establishment and maintenance of vocational schools may be had by addressing the Division of Agricultural and Industrial Education, Education Department, Albany.

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<sup>1</sup> Subcommittee on Agriculture of the Committee of the National Education Association on the reorganization of Secondary Education.



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